BITS FROM BYTES

BFB 3000

UPGRADE KIT 1

Summary

This document provides instructions to fit the components from the 'BfB 3000 Upgrade kit'. Please examine your upgrade kit – the packs supplied in your kit dictate which upgrades you need to carry out (if an item is not included in the upgrade kit this means your machine already has the part fitted). Match the codes supplied in your kit to the table of contents below.

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400771 Y dead-stop

The Y dead-stop (Figure 1) needs to be fitted to one of the Y bearing bars. This protects the delicate y-switch mounted in the rear top-left corner block.

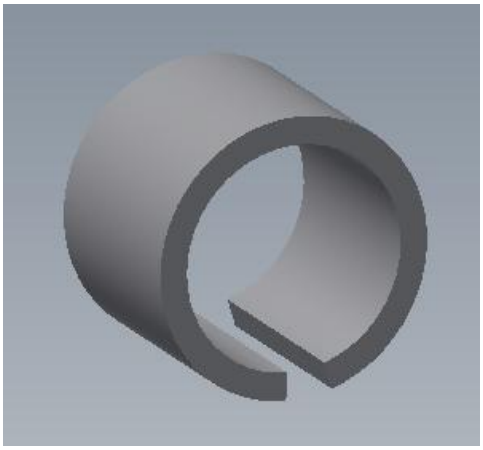

Figure 1: Y dead-stop

1. Clip the y dead-stop over the left hand y-bearing bar, next to the rear top-left bearing block (Figure 2).
2. Slide the dead-stop back so that it touches the face of the corner block, and rotate the dead-stop so that the slit faces down.

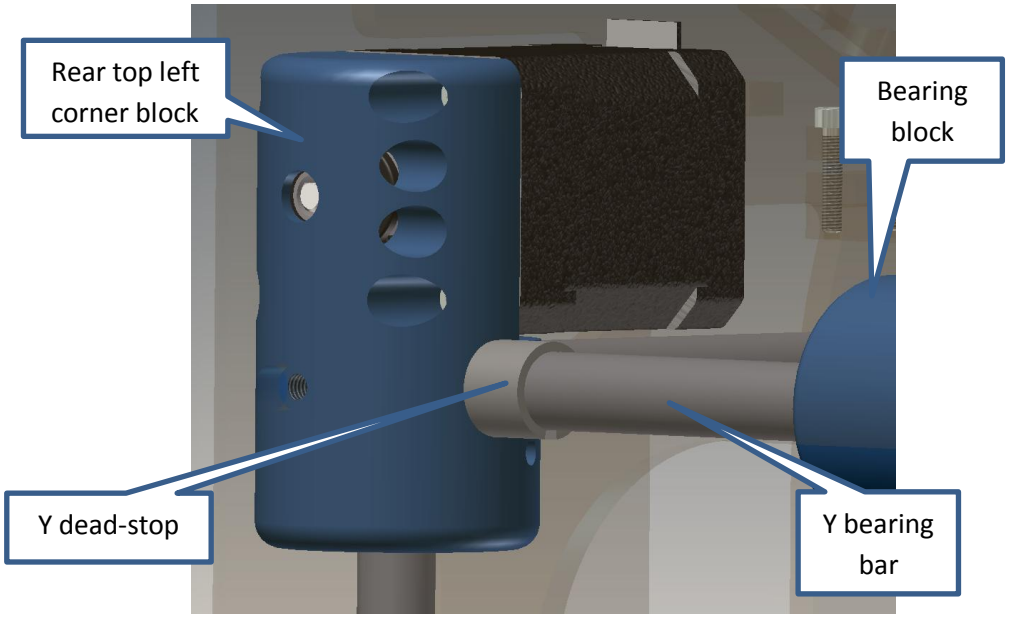

Figure 2: Y dead stop fitted to the rear top left of the machine.

400813 Full filament reel turntable

A new reel turntable reduces the amount of load on the extruders.

1. Remove all spools of material from the BfB 3000.
2. Ensure that the Y dead-stop (see previous retrofit 400771) has been fitted.
3. Rotate the BfB 3000 onto its back and remove the base by unscrewing the four feet. (this is optional but can make the installation easier)
4. From the base, remove the old filament reel post (Figure 3) by unscrewing the lower M5 bolt from the base. Discard the old reel post assembly.

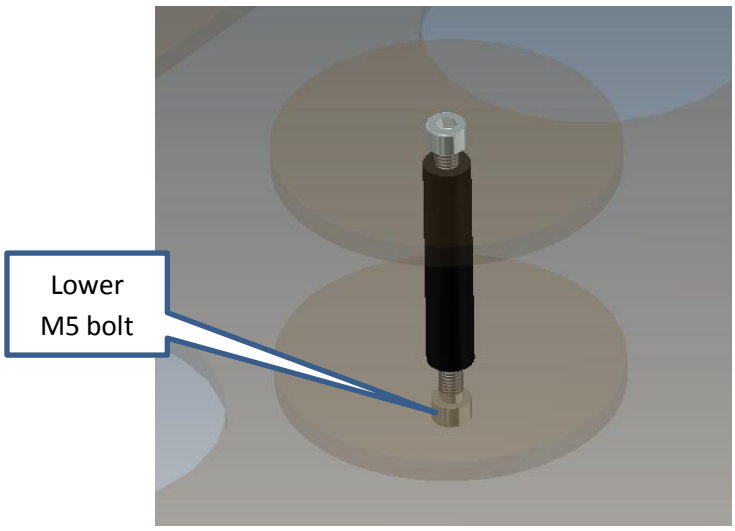

Figure 3: Old reel post

5. Prepare the new filament reel turntable: unscrew the M5 nut which is loosely fastened to the end of the central bolt (Figure 4), taking care to keep the spacers from falling off the central bolt.

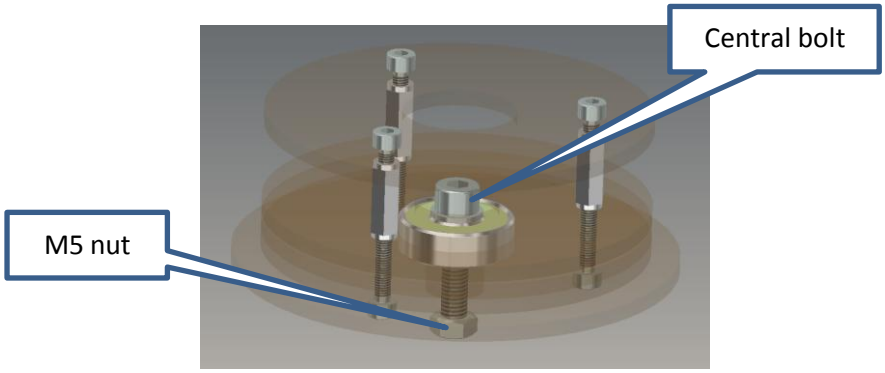

Figure 4: New filament reel turntable

6. Position the reel turntable over the base and fit the central bolt down into the base hole (where the old reel post was fastened), again taking care to keep the spacers from falling off the central bolt.
7. Re-fasten the nut onto the central bolt from the underside of the base to lock the turntable into position, as illustrated in Figure 5. Ensure that the spacers are correctly positioned (identified in Figure 5).
8. Check the turntable spins freely.

9. Repeat procedure to replace all old reel posts, if applicable. You will have been sent one reel holder per head fitted to the machine.

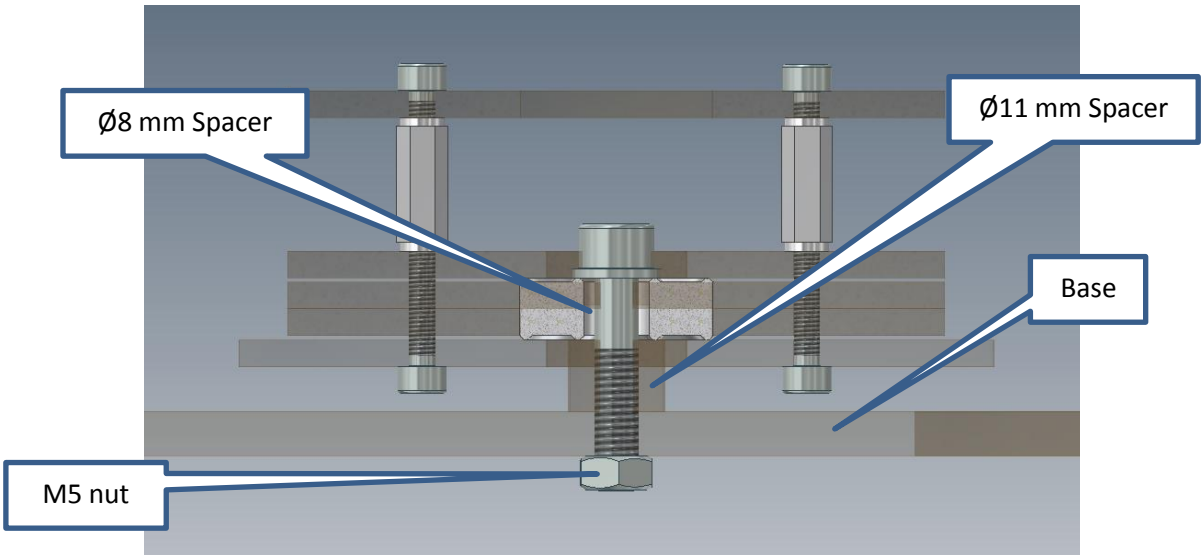

Figure 5: New filament reel turntable fastened to base

400821 Filament reel turntable extension

An extension has been added to the filament reel turntable (Figure 6) to prevent the reel from becoming unstable when it is nearly empty.

1. Remove all spools of material from the BfB 3000.
2. Ensure that the Y dead-stop (see previous retrofit 400771) has been fitted.
3. Rotate the BfB 3000 onto its back and remove the base by unscrewing the four feet. (this is optional but can make the installation easier)
4. From the base, detach the existing filament reel turntable by unscrewing the M5 nut from the underside of the base.
5. Remove the turntable assembly, taking care not to allow the spacers do not fall off the central bolt.

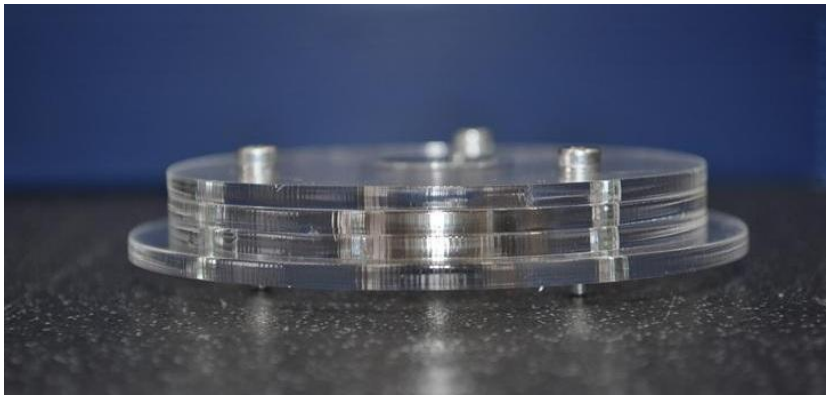

Figure 6: Filament reel turntable without extensions

6. Remove the three M3 x 16 cap bolts from the turntable (Figure 7). Retain the bolts, discard the nuts,

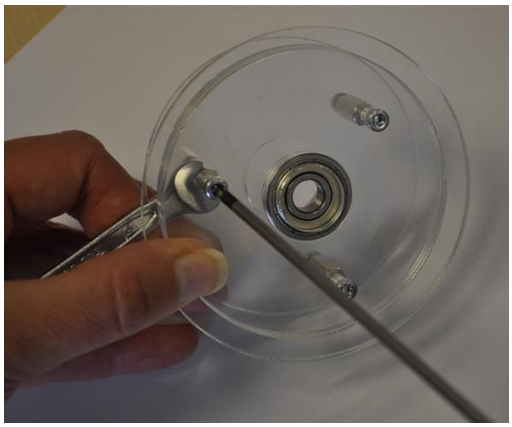

Figure 7: Removing the M3 bolts from the original turntable

7. While maintaining the turntable assembly, turn the retained M3 x 16 cap bolts around and push them up through the bottom of the turntable assembly and up into the three spacers supplied in the kit (Figure 8).

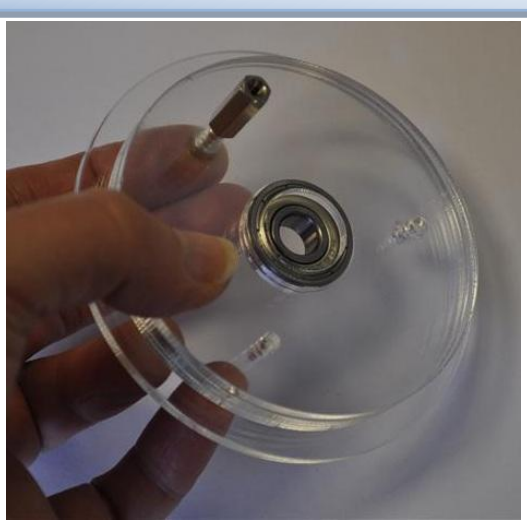

Figure 8: Extension spacers fitted to original turntable

8. Continue to insert and fit the remaining bolts and spacers.
9. Position the supplied top plate on top of the spacers to match with all 3 holes as shown in Figure 9, and fasten using the supplied M3 bolts.

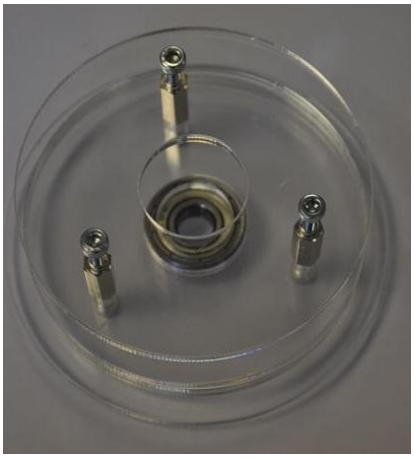

Figure 9: Extension plate fitted to original turntable

10. Reattach the turntable to the base using the central bolt, with the spacers in their original arrangement (the configuration is illustrated in Figure 5, page 5).

400818, 400819 & 400820 Extruder motor reinforcement plate

A second extruder motor plate needs to be fitted to reinforce the existing plate. This reduces bending in the plate, reducing wear on the drive belt.

The following instructions refer to a single extruder, however, exactly the same principles apply to a double or triple head. Obviously the motor plate will be bigger, and the number of fasteners will be multiplied up.

1. Remove the three M3 bolts behind each extruder, identified in Figure 10.
2. Discard these bolts.

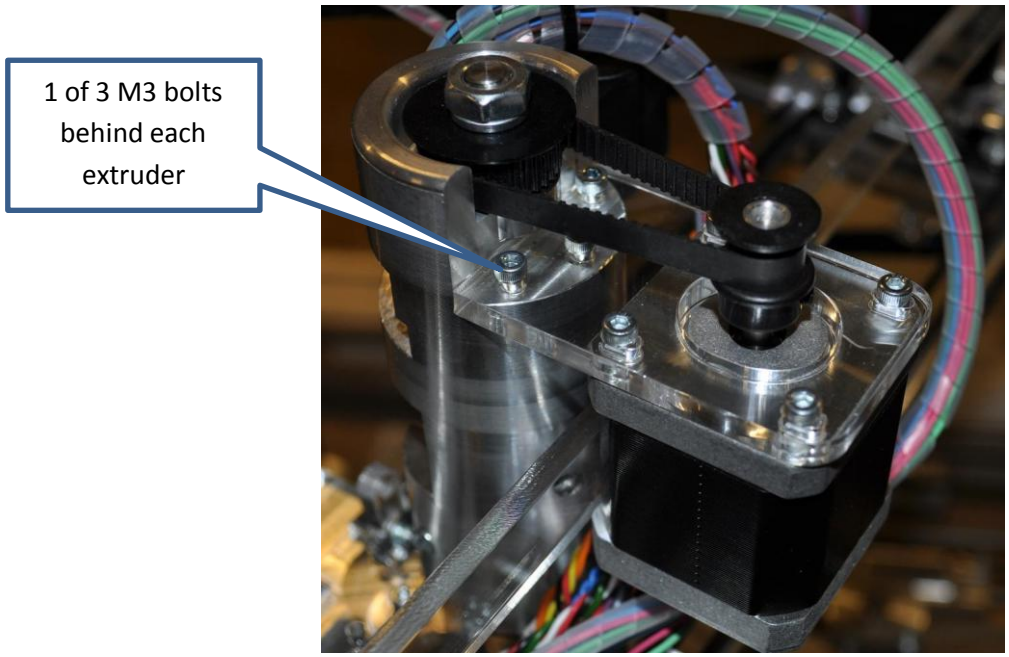

Figure 10: Original extruder motor plate

10. Disconnect the motor from the wiring loom at the connector (Figure 11).

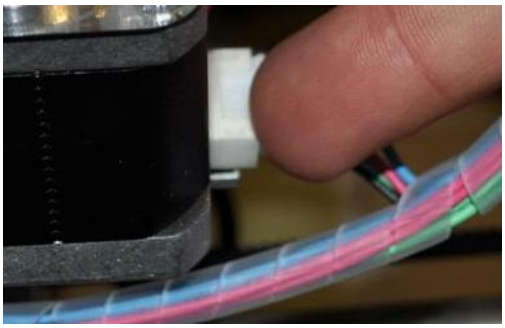

Figure 11: Motor connector

11. Lever the motor up, decoupling the drive belt, and remove the entire motor and plate assembly from the machine.

12. Once detached, unscrew the motor from the plate and discard the bolts.
13. Slacken the grub screw on the motor pulley.
14. Use the plate to set a new height for the pulley on the motor shaft (Figure 12). Insert the motor plate between the pulley and cylindrical motor boss and slide the pulley down to meet the plate (as shown in Figure 13).
15. Retighten the grub screw on the pulley, ensuring that the grub locates on the flat part of the motor shaft.
16. Remove the motor plate.
17. Repeat pulley adjustment for extruder motors 2 and 3 if applicable.

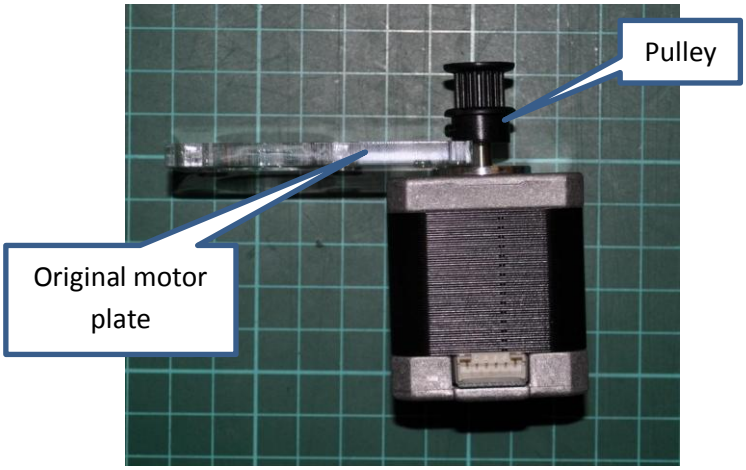

Figure 12: Using the original motor plate to set the new position for the drive pulley

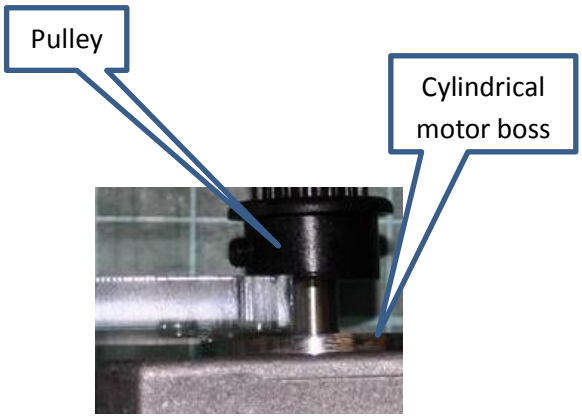

Figure 13: Motor plate acts as a spacer between pulley and cylindrical motor boss

18. Reposition the original motor plate and the new reinforcement plate as illustrated in Figure 14. Orientation notes:
    - The reinforcement plate (with a semi-circular cut-out at one end) sits on top of the original motor plate.
    - The three extruder mounting holes are not symmetrical. Ensure these match with the extruder barrel for both plates.
    - The motor connectors must be correctly orientated so that the wiring loom on the carriage can reach (when looking at the printer from the front: extruder motor 1 connector points to the left side, whilst motors two and three point to the back).
19. Loosely fit the four M3 x 12 cap bolts to attach the motor as shown in Figure 14.

Figure 14: Motor with original plate and reinforcement plate

20. Lever the motor and plate assembly back onto the extruder barrel, making sure that the drive belt is looped around both pulleys, as illustrated in Figure 15.

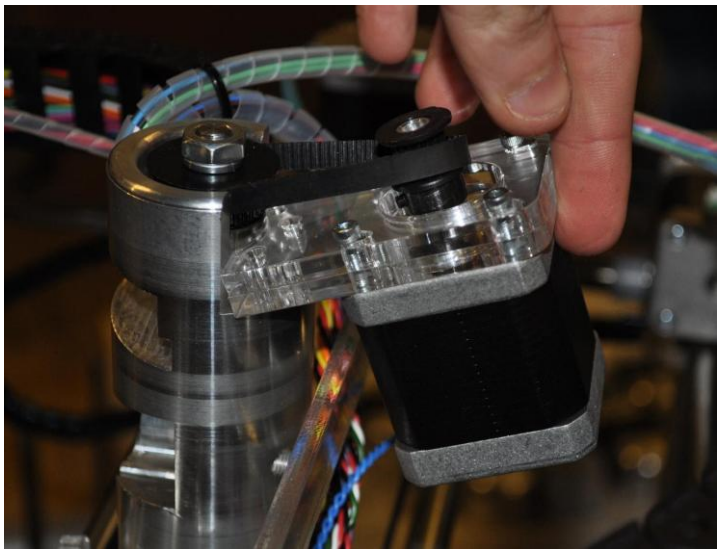

Figure 15: Refitting the extruder motor and plate onto the extruder barrel

21. Securely fasten the assembly with the M3 x 16 cap bolts supplied (identified in Figure 16).
22. Reconnect the motor as shown in Figure 16.

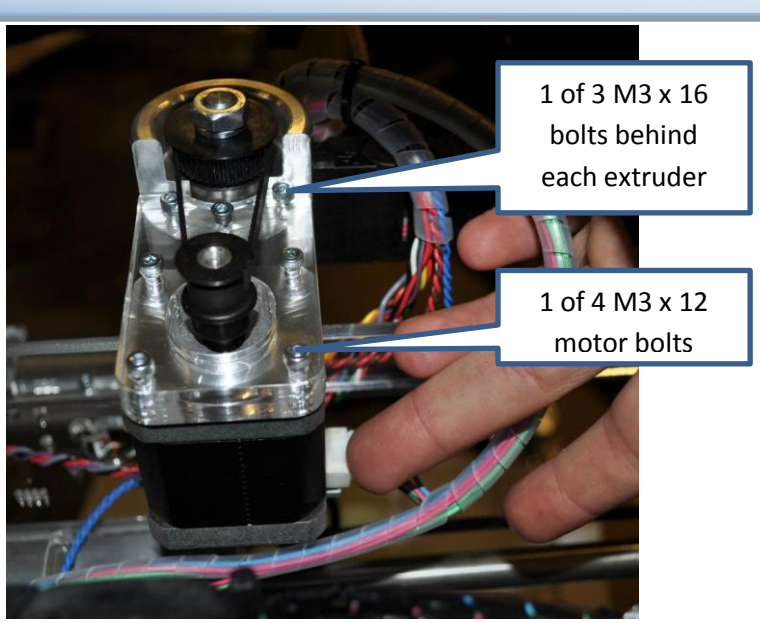

Figure 16: Reconnecting the motor

23. Slide the motor back in its plate to achieve high tension in the drive belt, and lock off the four M3 x 12 cap bolts to secure the motor.

400822 Pressure bearing complete

The pressure bearing has been modified to improve the reliability of the extruder: narrower inner bearings and a thicker bearing plate achieve a better grip on the filament, and a top hat washer improves the ability to compress the spring.

1. Remove the existing pressure bearing subassembly from each extruder (Figure 17).

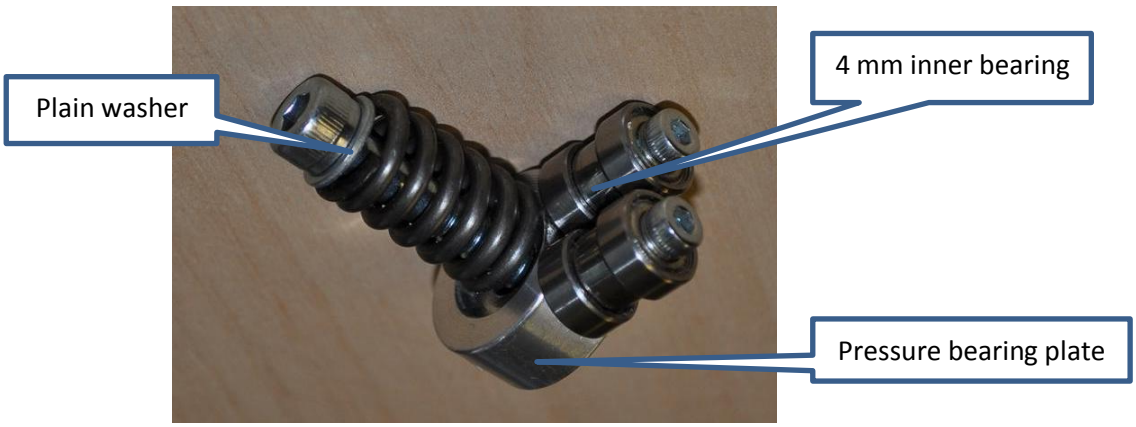

Figure 17: Original pressure bearing assembly

2. Disassemble the pressure bearing and remove the items identified Figure 17 (please discard all removed items immediately as it is essential that they are not mixed with the new items):
    - Bearing plate
    - Plain M5 washer
    - 4 mm inner bearings
3. Replace these items with those supplied in the upgrade pack, and re-assemble to match the assembly in Figure 18.

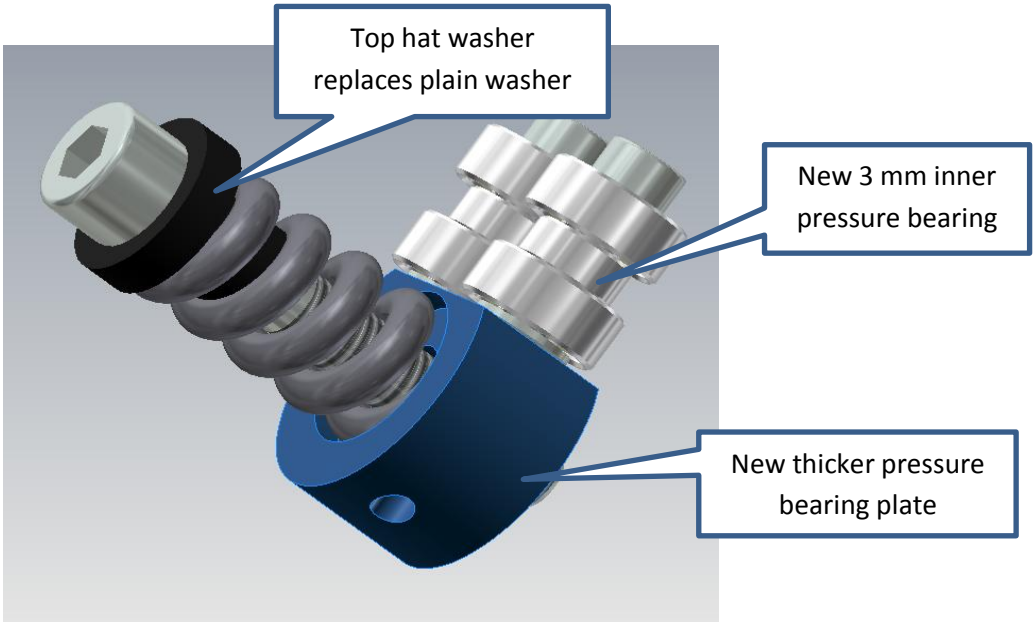

Figure 18: New pressure bearing assembly

400823 Pressure bearing plate and top hat

The pressure bearing has been modified to improve the reliability of the extruder: a thicker bearing plate achieves a better grip on the filament and a top hat washer improves the ability to compress the spring.

1. Remove the existing pressure bearing subassembly from each extruder.

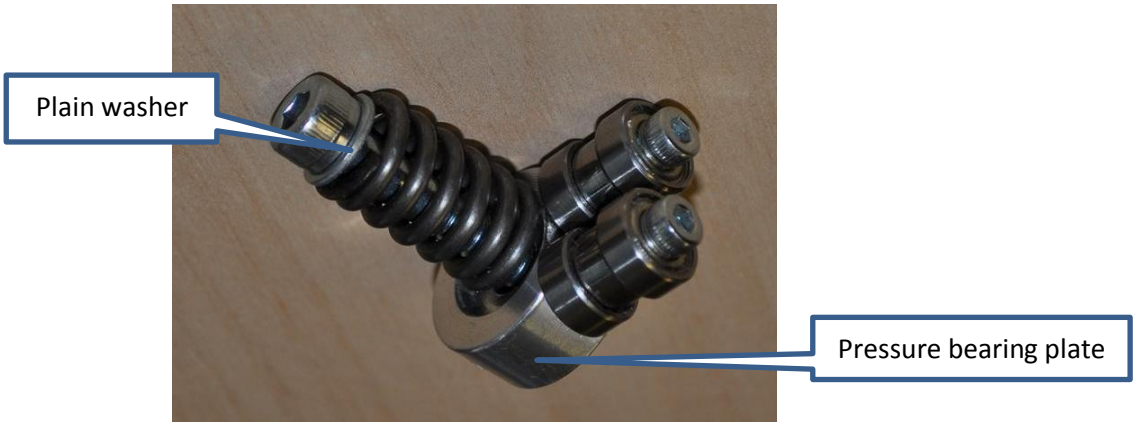

Figure 19: Original pressure bearing assembly

2. Disassemble the pressure bearing and remove the items identified in Figure 19 (please discard all removed items immediately as it is essential that they are not mixed with the new items):
    - Bearing plate
    - Plain M5 washer
3. Replace these items with those supplied in the upgrade pack, and re-assemble to match the assembly in Figure 20.

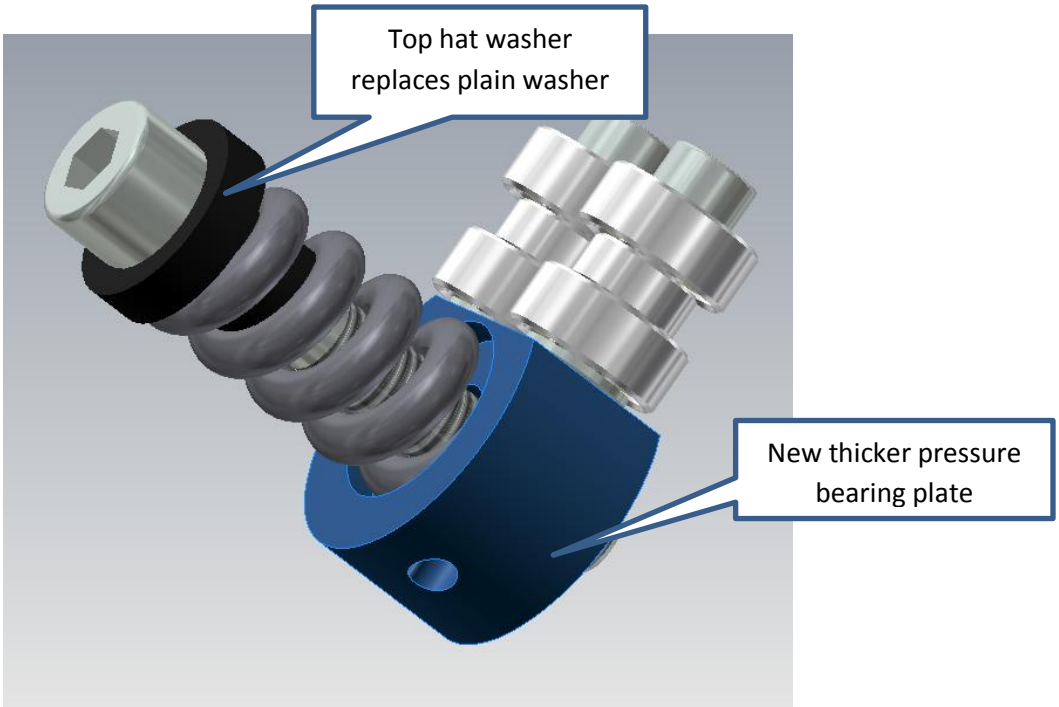

Figure 20: New pressure bearing assembly